

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 6,944,501 B1
APPLICATION NO. : 09/543264
DATED : September 13, 2005
INVENTOR(S) : Benjamin D. Pless

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It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Col. 12, line 42, add the following:

--66. A method for treating an abnormal neurological condition comprising the steps of:

applying to brain tissue at least one electrical burst comprising a multiplicity of pulses, said pulses having pulse parameters;

varying at least one of the pulse parameters during the at least one electrical burst;

applying the at least one electrical burst in response to a detectable electrical activity of the brain, wherein the detectable electrical activity in the brain is epileptiform activity and wherein the step of detecting the electrical activity in the brain is performed prior to initiating the application of the at least one electrical burst;

determining a pulse-to-pulse interval of said electrical activity in the brain prior to initiating said at least one electrical burst, wherein the at least one pulse parameter is pulse-to-pulse interval and further comprising the step of varying said pulse-to-pulse interval in length to between about 10% and about 400% of said epileptiform pulse-to-pulse interval.

67. A method for treating an abnormal neurological condition comprising the steps of:

applying to brain tissue at least one electrical burst comprising a multiplicity of pulses, said pulses having pulse parameters, the at least one electrical burst being applied in response to an epileptiform activity of the brain;

detecting the epileptiform activity in the brain prior to initiating said at least one electrical burst;

determining both an interval of the epileptiform activity in the brain prior to initiating said at least one electrical burst and a characteristic of the epileptiform activity;

delaying the initiation of said at least one electrical burst after the onset of the characteristic of the epileptiform activity for a period of time between 5% and about 100% of said interval of said epileptiform activity; and

varying at least one of the pulse parameters during the at least one electrical burst.

68. A method for treating an abnormal neurological condition comprising the steps of:

applying to brain tissue at least one electrical burst comprising a multiplicity of pulses, said pulses having pulse parameters, wherein the at least one electrical burst is applied in response to a detectable electrical activity of the brain, and wherein said detectable electrical activity is an epileptiform electrical activity;

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detecting said electrical activity in the brain after the application of said at least one electrical burst;
analyzing said electrical activity for epileptiform activity to produce a re-analyzed electrical activity; and
varying at least one of the pulse parameters during the at least one electrical burst.

69. The method of claim 68 wherein said re-analyzed electrical activity comprises epileptiform electrical activity, said method comprising the further steps of:
re-applying to said brain tissue at least one electrical burst comprising a multiplicity of pulses, said pulses having pulse parameters; and
varying at least one of the pulse parameters during the re-applied at least one electrical burst.

70. The method of claim 69 wherein the at least one pulse parameters varied in said re-applied at least one electrical burst are different than the pulse parameters varied in an earlier at least one electrical burst.

71. The method of claim 70 wherein said steps are repeated up to ten times.

72. An implantable neurostimulator assembly for treating a disorder in a human brain, comprising in combination:

- a.) at least a first electrical neurostimulator electrode;
- b.) at least a first electrical signal source connectable to said at least first electrical neurostimulator electrode, said first electrical signal source configured to initiate a stimulation burst to said at least a first electrical neurostimulation electrode, said at least one burst comprising pulses having pulse parameters, and wherein the first electrical signal source is configured to vary the pulse parameters;
- c.) at least a first brain electrical activity sensor for sensing electrical activity in a brain, wherein said at least first brain electrical activity sensor is configured to determine an epileptiform pulse-to-pulse interval of said electrical activity in the brain prior to initiating the application of said at least one electrical burst; and
wherein said first electrical signal source is configured to deliver an applied pulse-to-pulse interval that is varied in length between about 105% and about 400% of said epileptiform pulse-to-pulse interval.

73. An implantable neurostimulator assembly for treating a disorder in a human brain, comprising in combination:

- a.) at least a first electrical neurostimulator electrode;

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b.) at least a first electrical signal source connectable to said at least first electrical neurostimulator electrode, said first electrical signal source configured to initiate at least one stimulation burst to said at least first electrical neurostimulation electrode, said at least one burst comprising pulses having pulse parameters, and wherein the first electrical signal source is configured to vary the pulse parameters;

c.) at least a first brain electrical activity sensor for sensing electrical activity in a brain, wherein said at least first brain electrical activity sensor is configured to determine an epileptiform pulse-to-pulse interval of said electrical activity in the brain prior to initiating the application of said at least one electrical burst; and

further wherein said first electrical signal source is configured to again apply at least one electrical burst comprising a multiplicity of pulses, said pulses having pulse parameters, at least one of which pulse parameters vary during the burst, when said at least first brain electrical activity sensor detects epileptiform electrical activity after application of the said first electrical burst.

74. An implantable neurostimulator assembly for treating a disorder in a human brain, comprising in combination:

a.) at least a first electrical neurostimulator electrode, and

b.) at least a first electrical signal source connectable to said at least first electrical neurostimulator electrode, said first electrical signal source configured to initiate at least one stimulation burst to said at least a first electrical neurostimulation electrode, said at least one burst comprising pulses having pulse parameters, and wherein the first electrical signal source is configured to vary the pulse parameters;

c.) at least a first brain electrical activity sensor for sensing electrical activity in a brain, wherein said at least a first brain electrical activity sensor is configured to determine an epileptiform pulse-to-pulse interval of said electrical activity in the brain prior to initiating the application of at least one electrical burst when said at least first brain electrical activity sensor detects epileptiform electrical activity after application of said stimulation burst;

wherein said first electrical signal source is configured to again apply at least one electrical burst comprising a multiplicity of pulses, said pulses having pulse parameters, at least one of which pulse parameters vary during the burst, when said at least first brain electrical activity sensor detects epileptiform electrical activity after application of the said stimulation burst; and

further wherein said first electrical signal source is configured to vary at least one pulse parameter in said at least one re-applied electrical burst which parameter is different than the pulse parameter varied in said at least one stimulation burst.

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75. The implantable neurostimulator of claim 72 wherein said first brain electrical activity sensor comprises multiple brain electrical activity sensors.

76. The implantable neurostimulator of claim 73 wherein said multiple brain electrical activity sensors comprise sensors for measuring said at least one brain electrical activity of said brain simultaneously at different sites in a brain.

77. The implantable neurostimulator of claim 73 wherein said sensors are configured to measure said brain activity at a depth within a brain.

78. The implantable neurostimulator of claim 73 wherein said sensors are configured to measure said brain activity on a scalp.--

Signed and Sealed this

Thirtieth Day of September, 2008

A handwritten signature in black ink, appearing to read "Jon W. Dudas". The signature is stylized with a large, looped initial "J" and a cursive "Dudas".

JON W. DUDAS
Director of the United States Patent and Trademark Office